AMENDMENTS TO THE CLAIMS:

The following Listing of Claims replaces all previous claims and listings of claims in the application:

LISTING OF CLAIMS:

1-11. (Canceled)

12. (Currently Amended) A system for tracking multiple targets using distributed linear sensor arrays, comprising:

a plurality of distributed linear arrays of sensors for receiving signals from a target, each array of sensors comprising at least two sensors, said sensor arrays being non-parallel;

a receiver for receiving signals received by the plurality of sensor arrays;

~~an analog/digital converter for converting the signals received from the sensor arrays to a digital format, if signals are received in an analog format;~~

a digital storage device for storing ~~the~~ digitized data from the sensor arrays; and

a computer system ~~for~~ retrieving the stored digitized data from the plurality of sensor arrays and applying ~~processing the data through the use of~~ a composite Hough transform to a delay curve corresponding to a first of the sensor arrays and to a delay curve corresponding to a second of the sensor arrays to determine a track of the target.

13. (Cancelled)

14. (Currently Amended) A system, as in Claim 12 ~~13~~, wherein the sensors for receiving signals from a target are acoustic sensors.

15. (Currently Amended) A system, as in Claim 12 ~~13~~, wherein the sensors for receiving signals from a target are electromagnetic sensors.

16. (Currently Amended) A system, as in Claim 12 ~~13~~, wherein the sensors for receiving signals from a target are optic sensors.

17. (Currently Amended) A system, as in Claim 12 ~~13~~, wherein the receiver is an acoustic receiver.

18. (Currently Amended) A system, as in Claim 12 ~~13~~, wherein the receiver is an sonar signal receiver.

19. (Currently Amended) A system, as in Claim 12 ~~13~~, ~~wherein the means for converting the signals received from the sensor arrays to a digital format, if required, is~~ further comprising an analog-to-digital converter.

20-22. (Cancelled)

23. (Currently Amended) A method of processing data from at least two sensor arrays to determine the track of a target, each sensor array having at least two sensors, the sensor arrays being arranged non-parallel to each other, the method comprising:

computing a hypothesis reference track relative to a primary sensor array of the at least two sensor arrays;

computing a hypothesis reference track relative to a second sensor array of the at least two sensor arrays;

calculating an associated delay curve in a primary correlogram for the primary sensor array;

calculating an associated delay curve in a secondary correlogram for a secondary array;

accumulating data for the reference track by integrating a series of pixel values along the appropriate delay curve in the primary and secondary correlograms;

storing the accumulated pixel values in composite Hough space; and

thresholding the accumulated pixel values to detect the track.

24. (New) A method according to claim 23, wherein said sensor arrays are arranged perpendicular to each other.

25. (New) A method according to claim 23, wherein said sensors are acoustic sensors.

26. (New) A method according to claim 23, wherein said sensors are electromagnetic sensors.

27. (New) A method according to claim 23, wherein said accumulating data for the reference track further includes adding integrands resulting from said integrating in the primary and secondary correlograms.

28. (New) A method according to claim 23, wherein said accumulating data for the reference track further includes adding integrands resulting from said integrating in the primary and secondary correlograms.

29. (New) A method according to claim 23, wherein said applying the composite Hough Transform to the delay curves reduces ambiguity between the track of the target and a mirror track of the target.

30. (New) A method of processing data from at least two pairs of sensors to determine the track of a target, the pairs of sensors including a first pair of sensors and a second pair of sensors, the pairs of sensor arrays being arranged non-parallel with each other, the method comprising:

calculating a delay curve in a primary correlogram for the first pair of sensors;

calculating an associated delay curve in a secondary correlogram for the second pair of sensors;

and combining said delay curves with a composite Hough transform by integrating a series of pixel values along the appropriate delay curve in the each of the primary and secondary correlograms.

31. (New) The method according to claim 30, wherein said integrating includes simultaneously integrating said series of pixel values along the appropriate delay curve in each of the primary and secondary correlograms, and further combining the integrands by multiplication or addition.

32. (New) A method of processing data from at least two pairs of sensors to determine the track of a target, the pairs of sensors including a first pair of sensors and a second pair of sensors, the pairs of sensor arrays being arranged non-parallel with each other, the method comprising:

computing a hypothesis reference track relative to the first pair of sensors;

computing a hypothesis reference track relative to the second pair of sensors;

calculating an associated delay curve in a primary correlogram for the first pair of sensors;

calculating an associated delay curve in a secondary correlogram for the second pair of sensors;

accumulating data for the reference track by integrating a series of pixel values along the appropriate delay curve in the primary and secondary correlograms;

storing the accumulated pixel values in composite Hough space; and

thresholding the accumulated pixel values to detect the track.